Powering Good for Sustainable Energy

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Power systems of the future – an evolutionary vision

Factors:
- Full scale deployment of renewables across all regions
- Increased share of energy by wire and distributed energy resources
- Massive introduction of grid connected electrical vehicles
- Decarbonization, decentralization, bi-directional flows
- Utilities adjusting to new, additional business model
- Fully flexible power exchange with related data transfer (“Internet of Energy”)
- Real-time control and higher security
- Artificial Intelligence (AI) enabling complex autonomous processes

Text content:

Grids of the future demand flexibility, resilience, intelligence and interconnectivity
Attractive market with high growth segments

Global market ~approx. $100B* USD

- Mobility
- Industries
- Utilities

2019 - 2025

+2-3% CAGR

Customer value proposition

- Reliable, high-quality power to electrify transport and datacenters
- Grid integration and/or self-sufficiency via microgrids
- Partner of choice for enabling a stronger, smarter & greener grid
- Stronger to connect new consumers and ensure security of supply
- Smarter for more cost-effective operations and maintenance
- Greener via the integration of more renewables

High-growth segments (ex.)*

- EV Charging: >8%
- Rail: ~5%
- Microgrids: ~15%
- Data Centers: >6%
- Software: ~7%
- Grid Automation: ~4%
- HVDC: ~6%
- FACTS & Power Quality: ~5%
- Mobility: ~5%
- Industries: ~4%
- Utilities: ~2%

*Hitachi ABB Power Grids estimates

HVDC: High Voltage Direct Current
FACTS: Flex AC Transmission System
Power Grids global footprint

World’s largest installed base

4 business units
- Grid Automation
- Grid Integration
- High Voltage
- Transformers

Present in ~90 countries
200 offices globally

36,000 employees

+100 years of pioneering innovation

~5,500 sales employees and field engineers

~2,000 engineers & scientists in R&D

Headquarters in Zurich, Switzerland

115 factories

HITACHI ABB POWER GRIDS
The 4 pillars of the world’s #1 power grids business

**Grid Automation**
- Supporting **50% of the top 250** global electric utilities with leading portfolio
- ~**US $4 trillion** mission critical infrastructure assets managed with our software solutions
- ~**480 million** electricity consumers

**Grid Integration**
- ~**15,000 systems** operating around the world
- **Leader in FACTS** and **power quality**
- **Leader in HVDC systems with 130+ GW** installed

**High Voltage Products**
- Up to **1200 kilovolts AC** and 1100 kilovolts DC, leading portfolio
- **1 in every 4** high-voltage switchgear installed in the world
- Over **100 locations** worldwide provide 24/7 service support

**Transformers**
- **Complete range** of power, distribution, traction transformers, components, services
- Up to **1200 kV AC** and 1100 kV DC, leading portfolio
- ~**60 factories** around the world and ~30 service centers
Pioneering the digital grid

- Substation Automation, Digital Substation
- Distribution Automation
- Mission-critical Communications
- Service & Digital Solutions
- Grid Edge Solutions
- Network Control
- Energy Portfolio Management

Create new values for customers with AI based cutting-edge data analytics and optimizing technology
Powering good for a sustainable energy future, with pioneering and digital technologies, as the partner of choice for enabling a stronger, smarter and greener grid.

Utilities
- Products and components
  - Broadest portfolio and footprint

Industry
- Software and automation
  - Deepest application know-how
- Systems
  - Technology and innovation leader

Infrastructure
- Service
  - Largest installed base

Planning and building solutions

Global Technology and Market Leader

Digital grid pioneer

OT

IT
We co-create innovative solutions with customers and partners across the value chain (plan-build-operate) leveraging energy platforms and a focus on intelligent grids.
Energy, managed better

Uniting real-time forecasting and historical data to deliver operational efficiencies

At a newly developed industrial campus...

Lumada

Real-time Forecast
Hourly, daily, and weekly load profiles

Historical data

e-mesh™ EMS

Optimize operational settings to:

Maximize renewable use and economic benefit
Minimize grid consumption

Office buildings
Rooftop solar + e-mesh™ PowerStore™

Production facilities
Rooftop solar + e-mesh PowerStore

Parking facilities
Rooftop solar + e-mesh PowerStore

Load data
Grid data
Market data
Weather data

EMS: Energy Management System
COVID-19 impact on market perspectives

Pandemic causing temporary dip, but market recovery expected 2021+

- Protect people
- Preserve business continuity
- Prepare for “new norm”

Team up, collaborate and prioritize to manage and overcome the crisis
Power Grids Vision 2025

Growth and portfolio shift

Ambition

- Grow faster than the market
- Strengthen #1 market position
- Key SDGs* embedded - Focus on 7 SDGs

- Double % of revenues from service
- Fully digitalized portfolio
- #1
  - Grid planning
  - Grid automation and software
  - Renewables integration and storage
- Best-in-class, quality, delivery and operations

Powering good for a sustainable energy future, with pioneering and digital technologies, as the partner of choice for enabling a stronger, smarter and greener grid.

*Sustainable Development Goals
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Sustainable Energy in Focus
Hitachi ABB Power Grids, a new leader committed to a sustainable energy transition.

Profitable and Sustainable Growth
Attractive markets combined with the transformation initiatives strengthens our competitive position, enabling profitable and sustainable growth.

Focus on Customers and People
Power Grids continue to focus on customers and people, preserve business performance in times of unprecedented crisis while preparing for the “new norm” and for the new growth opportunities with Hitachi.
POWERING GOOD FOR SUSTAINABLE ENERGY.
www.hitachiabb-powergrids.com